ocellus; a dark brown marking, like a Maltese cross, lying across median line posteriorly; whole head with many long whitish hairs. Eyes prominent. Antennæ as long as the whole insect with wings folded, pale yellowish green, with black apices. Thorax strongly arched; pronotum with the yellow ground-colour, a median and a lateral brown spot, rather hairy; dorsulum broader than long, with two lateral acute points, the posterior small, a medio-lateral triangular brown patch anteriorly and a lighter brown median area posteriorly; mesonotum large, twice as broad as long, almost entirely dark brown except for a greenish-yellow patch medianly anteriorly, and laterally; both dorsulum and mesonotum striate; scutellum dark brown, punctate, with strongly developed greenish-yellow fronto-lateral horn-like processes. Legs pale brown, with darker colouring on femora. Tegmen hyaline, no pterostigma, the margin between *Rs* and cubitus with long black-brown marks, a black patch on clavus, length twice the breadth. Abdomen dark brown, with lighter brown on segmental margins. Male genitalia with anal valve large, base broad, apex subconical, external margin about twice the length of inner margin; forceps rather long, narrow, rounded at apex, elbowed about one-third distance from apex.

Length 3·2 mm.; length of tegmen 3·5 mm.

PANAMA: V. di Chiriqui, 25–4000 feet (*G. C. Champion*).

LXXX.—*On the Presence of an Abietinean Cone-Scale,* Pityolepis durleyensis, sp. n., *in the Bournemouth Eocene Beds.* By H. BANDULSKA, A.R.C.S., M.Sc., F.L.S.

AMONG the plant-remains found in the Eocene deposits of Bournemouth, conifers are extremely common, but up to the present no genus of the Abietineæ has been recorded. Gardner (1886, p. 135), in fact, says that the Abietineæ "formed no part of the inland flora of the Middle Eocene" at Bournemouth.

It therefore seems worth while to place on record the finding of an Abietinean cone-scale in beds belonging to the Bournemouth Fresh-water series at Durley Chine, Bournemouth.

PITYOLEPIS, Nath.

Pityolepis durleyensis, sp. n. (See text-figure.)

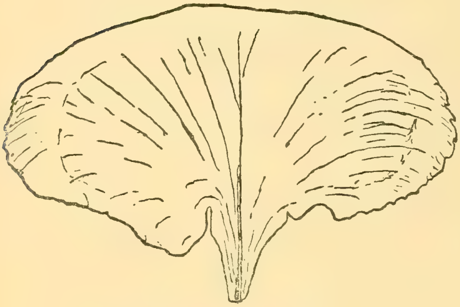
Asymmetrical, somewhat fan-shaped; upper edge emarginate, raggedly crenulate on either side of the notch; base cuneate, with an ascending and sharply angular sinus on the wider side of the scale ; median vein well marked, secondary veins coarse, radiating, and sometines bifurcating, the lowest veins springing from the extreme base.

Length 19 mm., width 19·5 mm.

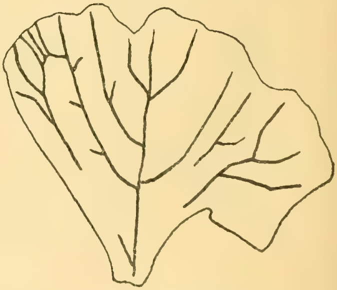
Age. Middle Eocene.

Locality. Durley Chine, Bournemouth. Type V. 15865 (specimen with counterpart), B.M. (Nat. Hist.).

Affinities.—It is possible to limit comparison to three living genera of the Abietineæ—*Abies*, *Picea*, and *Pseudotsuga*. The fossil cone-scale is slightly broader than long, hence the genus *Pinus* is excluded, since the ovuliferous scales of *Pinus* are oblong or strap-shaped. *Larix*, *Cedrus*, and *Tsuga* have symmetrical scales and no sinus. The asymmetry, which is well marked in the fossil, is a common feature in *Abies*, is less obvious in *Picea*, and is slightly marked in *Pseudotsuga*. The emarginate or notched upper edge is a common characteristic of *Picea*. The irregularly crenulate or serrate margin is characteristic of both *Abies* and *Picea*, and of some species of *Pseudotsuga*—e. g., *Ps. douglasii*.



Abies religiosa, × 2.



Pityolepis durleyensis, × 2.

The ascending angular sinus found on one side of the basal stalk portion in *Pityolepis durleyensis* is present in recent species of *Abies*, which show either one sinus only or one on either side of the scale-stalk, in which case one sinus is usually more pronounced than the other. A short blunt angular sinus is present in *Pseudotsuga japonica*. A sinus on one side of the scale is present in some species of *Picea* (e. g., *P. engelmanii*), and is present or absent in *P. pungens*. The recent species of *Abies* show a stalk, as distinct from the expanded portion of the scale. The passage in the fossil from scale to stalk is gradual, and there is no sharply delimited stalk. This is more like *Picea*, where the scale tapers gradually to a stalk-like portion, and is seen too in *Pseudotsuga japonica* and *Ps. douglasii*. The venation gives little aid in diagnosis ; the veins are not well marked in Abietinean cone-scales, and are finer in *Picea* than in *Abies*. Though fairly strong in *Ps. douglasii*, where the characteristic bifurcation can be seen clearly near the edge, they are far less prominent in the body of the scale than in the fossil. The fact that a single cone-scale was found suggests that it belonged to a genus whose scales were deciduous. The scales of recent species of *Abies* are deciduous, but the cones of *Pseudotsuga* and *Picea* do not shed their scales at maturity. Groom (1909, p. 105) states that the lowest and uppermost scales are sterile in *Picea*, and it is significant in this connection that the scale under discussion shows no evidence of seed-impressions.

Other Tertiary Cone-scales.—Sismonda (1859, pl. iv. fig. 4) figures a cone-scale from the Miocene of Piedmont, showing the same type of venation as *Pityolepis durleyensis*. He describes it as a *Pinus* belonging to the division *Picea*. No measurements are given, but if drawn natural size it is very wide for a *Picea* and its general shape is more like that of a *Tsuga*.

Heer (1868, p. 143) records two species of cone-scale (*Pinus ingolfiana* and *Pinus steenstrupiana*) from the Miocene of Iceland. The general appearance of these is similar to that of *Pityolepis durleyensis*, but the venation is far more delicate. Heer compares *P. steenstrupiana* with *Abies* and *P. ingolfiana* with *Picea*, though the latter identification does not seem quite certain.

Conclusion.—While the fossil shows a certain amount of affinity with *Abies*, the resemblances are not sufficient to warrant us in referring it to that genus. It shows various features typical of the genus *Picea*, while its general appearance and venation suggest *Pseudotsuga*. The noncommittal name *Pityolepis* expresses its Abietinean affinity without definitely associating it with a living genus.

The fossil was discovered while working on the Bournemouth flora with the aid of a grant from the Royal Society, and I am indebted to Dr. A. Smith Woodward for facilities afforded me at the British Museum (Natural History). I have to thank Mr. W. N. Edwards for much help and kindly criticism.

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LXXXI.—Æthosciurus vexillarius *and* Æ. byatti.

By P. S. KERSHAW.

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HAVING had occasion recently to refer to the skulls of the above two species, the descriptions of which are to be found in this Journal (ser. 9, vol. xi. pp. 591 & 592, May 1923), I discovered that I had assigned them to the wrong genus, which should have been *Æthosciurus*, not *Funisciurus.*

Both species are members of the *lucifer-ruwenzorii* group. From the brilliant *lucifer* they are at once distinguished by colour ; from *ruwenzorii* and *r. vulcanius* by the absence of the broad median white streak on the underparts. The colour of the under surface from chest to tail of *vexillarius* and *byatti* is singularly like that of *lucifer*, in spite of the great difference in the coloration elsewhere.

The skull of *vexillarius* resembles that of *lucifer*, but is much flatter and broader—tip to tip of postorbital processes 25 mm. instead of 23,—while the nasals are flatter at the tip. The skull of *byatti* is narrower than either, as in *ruwenzorii,* but with quite different nasals to those of the latter, being very much longer and flatter, and, instead of being narrow at the posterior end and gradually widening to the tips, they are of the same breadth till quite near the tips. The palatal foramina of both *byatti* and *vexillarius* are narrow, as in *lucifer*, not broadening out posteriorly, as in *ruwenzorii.* The teeth, too, are large, as in *lucifer.*

The affinities of both species are with *lucifer.* They have little in common with *ruwenzorii,* except size.